

REMARKS/ARGUMENTS

As a result of this Amendment, claims 1-44 are under active consideration in the subject patent application.

In the Non-Final Official Action, the Examiner:

(1) objected to claims 20-41 as being indefinite for failing to particularly point out and distinctly claim the subject matter of invention;

(2) rejected claims 1, and 5-14 under 35 U.S.C. 102(e) as being anticipated by Krasnov, et al. (U.S. 2003/0160589); and

(3) rejected claim 2-4, and 15-19 under 35 U.S.C. 103(a) as being unpatentable over Krasnov, et al. (U.S. 2003/0160589);

As a preliminary matter, new claims 43 and 44 have been added. Support for new claims 43 and 44 may be found throughout the application as originally filed. See, for example, page 12, line 15 to page 17, line 31. No new matter has been added. Entry of new claims 43 and 44 are requested.

With regard to Item 1, claims 1-22 and 26 have been amended to attend to the §112 issues identified by the Examiner, and to further distinguish the claim subject matter from the references identified in the substantive portions of the Official Action. No new matter has been introduced into the claims as a result of these changes. Reconsideration is requested.

With regard to Items 2 and 3, Applicant traverses the Examiner's reliance upon the Krasnov et al, reference, and requests reconsideration for the following reasons. In formulating the rejection under §§102 and 103, the examiner has omitted to consider features according to which the at least one first covering layer consists of a first electrical insulating material that is stable in relation to the used electrolyte and electrode material and has been deposited from the gas phase or in form of a liquid of viscous paste. In addition, the examiner has identified the recess provided in the present encapsulation to be identical to the gap provided between the casing and the battery cell 11 of Krasnov, shown in figures 1 and 2 and which is described at paragraph [46].

In order to clarify that the present "recess" is not a "gap" in the sense of the Krasnov reference, applicant has amended the claims by removing the limitation "recess" and replacing it with the limitation "opening". In this way, the present claims include the following: *"the covering layer(s) have recesses or openings connecting the current diverters of the battery with the exterior battery contacts"*. These openings are filled with an electrically conductive material, preferably metal and are therefore completely sealed (see para. [9], last line). It is the electrically insulating material which is provided with the at least one opening. This can easily be derived from the fact that the at least one first covering layer consists of the first electrically insulating material (see claim 1), and it is the covering layer, i.e. the electrically insulating material which has openings connecting the current diverters of the battery with the exterior battery contacts (see last lines of para. [9]). Claim 1 has been amended to reflect these features.

In addition, the opening is not only closed by an electrically conductive material, but it is filled by the electrically conductive material. In this regard, para. [56] indicates that over the obtained openings, subsequently an electric contacting is carried out, as shown in figure 8. Also, metals 11 are deposited and structured which create a junction between the current diverter contact 9 and the real battery contact 2a, 2b or 3".

Turning to the substance of the Krasnov reference, it discloses a battery which is enclosed in a casing. In one version, a gap is provided between the casing and the battery cell 11. The casing is fabricated from a gas barrier material, such as a metal foil, metalized plastic foil or thin ceramic material, e.g., mica. As can be seen from figures 1 and 2 and the citations of the examiner, the gap is situated between the casing and the elements of the battery (figures 1 and 2 depict electrolyte material 20 and current collector 24 as the layers limiting the gap on the battery side). This gap is an essential feature of the Krasnov battery cell; although it is described as optional. Also, at paragraphs [7] and [8], there is disclosed a rechargeable battery having a permeable anode current collector having a first surface electrically coupled to the electrolyte and an opposing second surface. The current collector is sufficiently small to allow cathode material to permeate therethrough to form an anode on the opposing second surface of the permeable anode current collector when the battery cell is electrically charged. The charged battery is shown in figure 2. Thus, the discharged battery is without any anode layer (see para. [38]. The permeable anode current collector 24 comprises an exposed outer surface 26 that faces away from the electrolyte 20 and does not include an overlayer.

During charging, Kasnov's cathode material permeates the permeable anode current collector 25 and forms an anode film 28 on its outer surface 26 (see para. [40], first lines). Thus, the gap between current collector and casing is required in order to provide sufficient space for the anode which forms during charging. It is the advantage of this specific arrangement that the anode film does not form between the electrolyte 20 and the permeable anode current collector 24, exerting less stress on the electrolyte 20 and the permeable anode current collector 24. Therefore, less damage occurs to the interface between the electrolyte and the permeable anode current collector 24 (see para. [40]). It is evident that in order to provide the gap, Krasnov et al., must use a self-supporting material for the casing, such as the metal foil, metallized plastic foil or thin ceramic material as mentioned in paragraph [46].

In contrast, the present invention is directed to a battery where the first covering layer consists of a first electrically insulating material that has been deposited from the gas phase or in form of a liquid or viscous paste. Accordingly, this covering layer is directly applied to the uppermost layer of the battery without any space or gap there between. See, for example, figure 6 and paragraphs [46] to [54]. As outlined in paragraph [52], the encapsulation layer should possess a good adherence to the substrate and the battery and should have a good mechanical stability and elasticity for being able to absorb extensions which might occur due to minor volume changes of the battery in cycling or storing. This is also the reason why the electrically insulating material must be stable in relation to the used electrolyte and electrode materials, as required according to claim 1.

In contrast to the gap of Krasnov et al., the present invention provides an opening within the covering layer, i.e., within the deposited electrically insulating material. The opening is provided in order to be filled with an electrically conducting material which connects the current diverters of the battery with the exterior battery contacts (See the last two sentences of para. [9]). Krasnov et al., fails to disclose or suggest in any way these features of the present invention.

For at least the foregoing reasons, claims 1-44 are patentable over the disclosure of the Kasnov reference. Reconsideration and withdrawal of the rejections in view of the Kasnov reference are requested.

In view of the foregoing, Applicant respectfully submit that claims 1-44 are in condition for allowance. Favorable reconsideration is therefore respectfully requested. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

If a telephone conference would be of assistance in advancing prosecution of the above-identified application, Applicant's undersigned Attorney invites the Examiner to telephone him at **215-979-1255**.

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